

Name ..... Index Number ..... / .....

231/2

**BIOLOGY****Paper 2 (THEORY)****Oct./Nov. 2015**

2 hours

Candidate's Signature .....

Date .....

**THE KENYA NATIONAL EXAMINATIONS COUNCIL****Kenya Certificate of Secondary Education****BIOLOGY****Paper 2 (THEORY)**

2 hours

**02315150****Instructions to candidates**

- (a) Write your name and index number in the spaces provided above.
- (b) Sign and write the date of examination in the spaces provided above.
- (c) This paper consists of **two** sections; **A** and **B**.
- (d) Answer **all** the questions in section **A** in the spaces provided.
- (e) In section **B** answer question **6 (compulsory)** and either question **7** or **8** in the spaces provided after question **8**.
- (f) This paper consists of **12** printed pages.
- (g) Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.
- (h) Candidates should answer the questions in English.

**For Examiner's Use Only**

Section	Question	Maximum Score	Candidate's Score
<b>A</b>	1	8	
	2	8	
	3	8	
	4	8	
	5	8	
<b>B</b>	6	20	
	7	20	
	8	20	
<b>Total Score</b>		<b>80</b>	



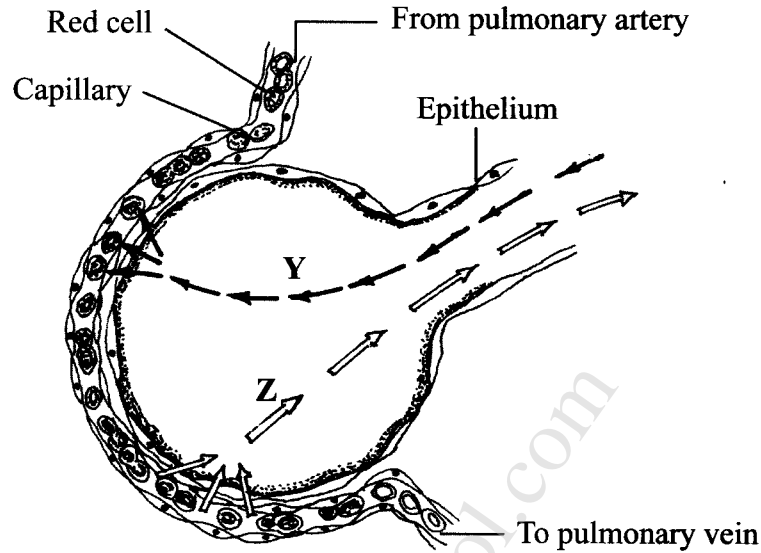
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**Turn over**

**SECTION A (40 marks)**

Answer *all* the questions in this section in the spaces provided.

- 1 The diagram below illustrates a blood capillary surrounding a structure for gaseous exchange in human beings.



- (a) Name the gaseous exchange structure. (1 mark)

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- (b) Identify the gases labelled Y and Z.

Y ..... (1 mark)

Z ..... (1 mark)

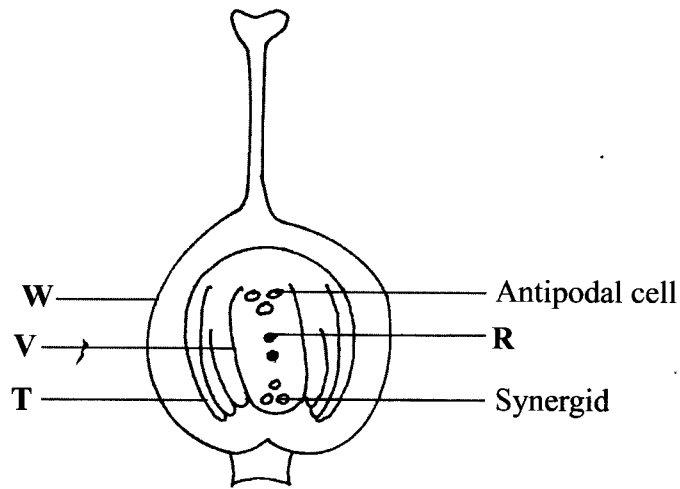
- (c) How does the gas labelled Y reach the inside of the blood capillary? (3 marks)

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 .....  
 .....

- (d) How does cigarette smoking lead to lung cancer? (2 marks)

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2 The diagram below illustrates the structure of the female part of a flower.



(a) Name the part labelled **W**. (1 mark)

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(b) Describe what happens when the pollen tube enters the structure labelled **V**. (5 marks)

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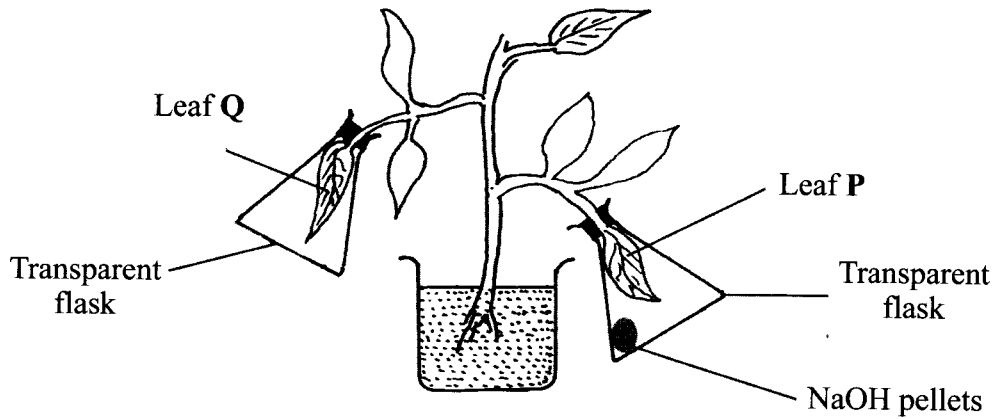
(c) What do the structures labelled **R** and **T** develop into after fertilization?

**R** ..... (1 mark)

**T** ..... (1 mark)

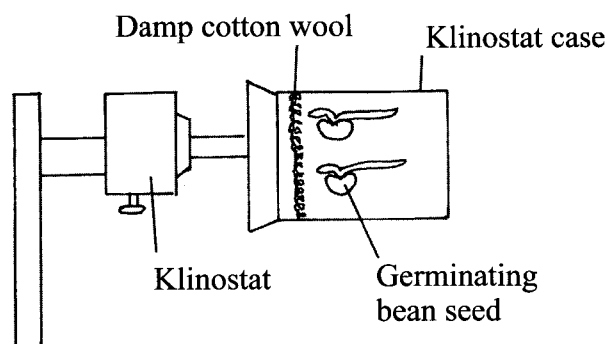


- 4 In an experiment to investigate a factor affecting photosynthesis, a potted plant which had been kept in the dark overnight was treated as shown in the diagram below and exposed to light.



- (a) Why was the potted plant kept in the dark overnight? (1 mark)
- .....
- (b) Which factor was being investigated in the experiment? (1 mark)
- .....
- (c) (i) Which test did the students perform to confirm photosynthesis in the leaves labelled P and Q? (1 mark)
- .....
- (ii) State the results obtained in the leaves labelled P and Q.
- P ..... (1 mark)
- Q ..... (1 mark)
- (iii) Explain the results obtained in the leaves labelled P and Q.
- P ..... (1 mark)
- Q ..... (1 mark)
- (d) What was the purpose of leaf Q in the experiment? (1 mark)
- .....

- 5 In an experiment to investigate a plant response, the set up shown in the diagram below was used.



- (a) Name the type of response that was being investigated. (1 mark)

.....

- (b) If the Klinostat was **not** rotating:

- (i) state the observations that would be made on the seedlings after three days; (2 marks)

.....

.....

- (ii) explain the observations in (b) (i) above. (3 marks)

.....

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- (c) If the experiment was repeated with the Klinostat rotating:

- (i) state the observation that was made on the seedlings after three days; (1 mark)

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- (ii) give a reason for the observation made on the seedlings. (1 mark)

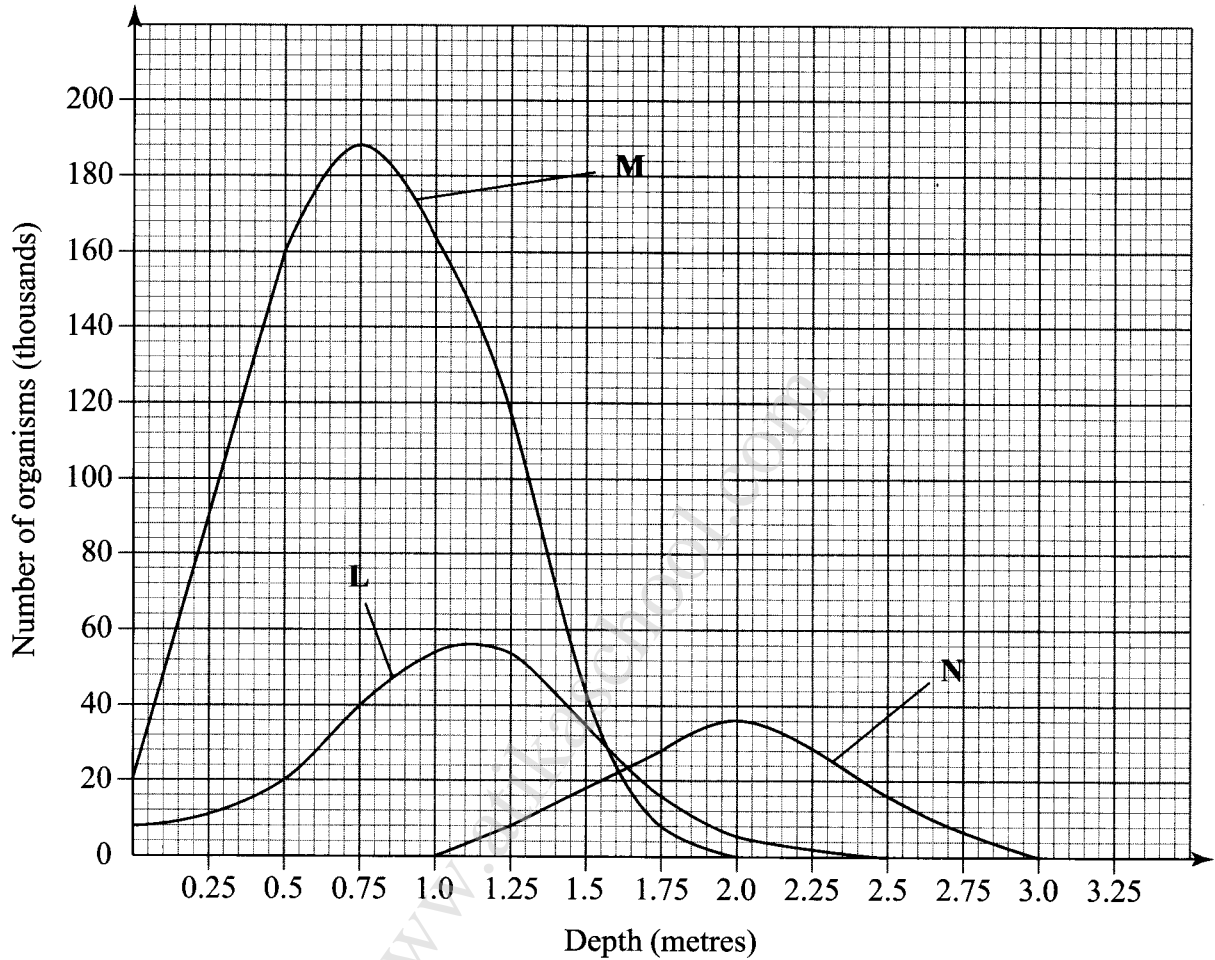
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**SECTION B** (40 marks)

Answer question 6 (compulsory) and either question 7 or 8 in the spaces provided after question 8.

6 The graph below shows the relative numbers of three main species of organisms in a pond.



- (a) Giving a reason for your answer, which of the species is a
- (i) producer? ..... (1 mark)  
Reason ..... (1 mark)
  - (ii) secondary consumer? ..... (1 mark)  
Reason ..... (1 mark)

- (b) State the depths at which each of the populations labelled **L**, **M** and **N** is at its optimum.
- L** ..... (1 mark)
- M** ..... (1 mark)
- N** ..... (1 mark)
- (c) (i) Which method may have been used to determine the population of organisms labelled **N** in the pond? (1 mark)
- .....
- (ii) Give a reason for your answer in (c) (i) above. (1 mark)
- .....
- (iii) State the assumptions made when using the method in (c) (i) above. (4 marks)
- .....
- .....
- .....
- .....
- (d) State **two** reasons why primary productivity in the pond decreases with depth. (2 marks)
- .....
- .....
- (e) Explain the ecological importance of fungi to plants. (2 marks)
- .....
- .....
- (f) Why is flooding likely to lead to a cholera outbreak? (3 marks)
- .....
- .....
- .....



